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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,312	10/02/2002	Hideaki Takahashi	SIMTEK6469	7690

25776 7590 12/24/2003

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EXAMINER

COMAS, YAHVEH

ART UNIT PAPER NUMBER

2834

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

2m

## Office Action Summary

Application No.

10/065,312

Applicant(s)

TAKAHASHI, HIDEAKI

Examiner

Yahveh Comas

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-12 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-12 and 14 is/are rejected.
- 7) ☒ Claim(s) 15-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

***Response to Arguments***

1. Applicant's arguments filed 9/10/2003 have been fully considered but they are not persuasive.

Regarding Li not teaching a word about cogging torque reduction, Li discloses the stator includes a disk body fixedly mounted on the wheel axle and suspended inside the wheel hub within the rotor, and a silicon steel stack fixedly mounted around the periphery of the disk body, the silicon steel stack having a plurality T-teeth, the number of the T-teeth being not a common multiple of the number of the magnets so that vibration and cogging torque can be minimized during rotary motion of the rotor relative to the stator, and a three-phase winding mounted on the T-teeth of the silicon steel stack of the disk stator (for example Abstract).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1,3-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono et al. JP Patent No. 02254954 in view of Li U.S. Patent No. 6,278,216.

Ono disclose a motor having a magnetic field detecting element for detecting the position of the core (3) comprising a rotor with permanent magnets and a stator core (3) comprising a plurality of teeth surrounded by coil winding and defining slots there between. The stator core is divided into an upper core (3a) and a lower sore (3b) in the direction of the rotary shaft in such

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way that the division have different cogging torque and end each cogging torque are cancelled mutually whereby the cogging torque of the whole of the motor may be reduced.

Ono doesn't disclose the relation of the assembly is determined by the least common multiple of the number of said magnets and the number of slots. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ono's invention and made the relation between the assembly to be determined by the least common multiple of the number of said magnets and the number of slots, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Therefor is obvious to determine the relation of the assembly by the least common multiple of the number of said magnets and the number of slots.

Ono disclose the claimed invention except for the cogging canceling device is selective operable for selectively generating its cogging torque and operable only at a lower speed of relative rotation of the primary device. However, Li disclose the use of motor with the number of the T-teeth being not a common multiple of the number of the magnets so that vibration and cogging torque can be minimized during rotary motion of the rotor relative to the stator and also disclose a alternate form of his invention where the motor have a pair of stators (4 and 4') and a MPU that detect the value of current and activated a second motor when there is a change in current for the purpose of eliminating a starting dead angle and a cogging torque.

Therefor, it would have been obvious to one having skill in the art at the time the invention was made to Modify Ono's invention and provide the motor with a circuit capable of

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activate the second stator as the moment of detecting a signal as a effect of a low speed for the purpose of eliminating a starting dead angle and cogging torque.

***Allowable Subject Matter***

4. Claim 15-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yahveh Comas whose telephone number is (703) 305-3419. The examiner can normally be reached on M - F 8:00am - 4:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

YC

  
BURTON S. MULLINS  
PRIMARY EXAMINER